


Framework for Cumulative Risk Assessment



Science of Environmental Justice
Workshop
May 25, 2004



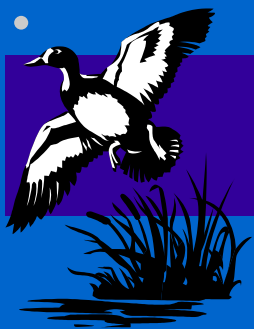
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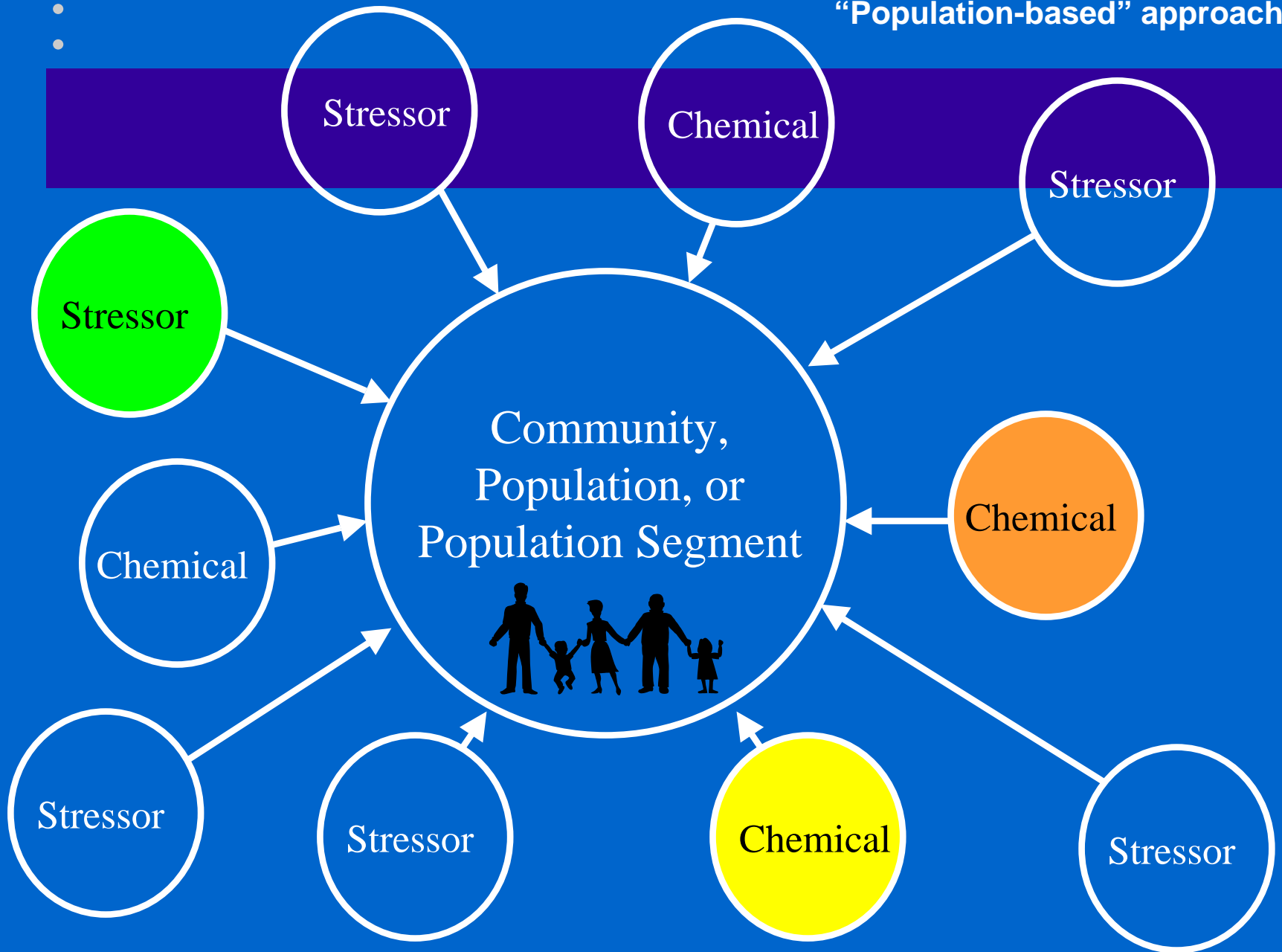
Framework Document

- What is it?
- History
- Features
- Future plans

Chemical,
Agent, or
Stressor



“Conventional” approach



Framework vs. Guidelines

- Framework: General description of the topic. An **information document** laying out scope of the subject and how various parts fit together. (This document)
- Guidelines: Description of how it's done, including **boundaries** (e.g., limits of “good science”) not to be exceeded. (Several years away)

Impacts vs. Risks

- **Impacts** – harm or adverse effects
- **Risks** – *Probability* of harm or adverse impacts

Framework Definitions

- **Cumulative Risk:** The **combined risks** from aggregate [multi-pathway, multi-source, multi-route, over time] exposures to **multiple agents or stressors**.
- **Cumulative risk assessment:** An analysis, characterization, and **possible quantification** of the combined risks to health or the environment from multiple agents or stressors.

History

- Planning & Scoping memo 1997
- Framework started 1999 – Forum Tech Panel
- Three external peer involvement meetings 2001
- EPA's Science Advisory Board 2000, 2001
- External peer review June, 2002
- Dallas Workshop November, 2002
- Published May, 2003 (EPA/630/P-02/001F)

Features

- Multiple chemicals/stressors
- Non-chemical stressors
- Population focus
- Stakeholder emphasis
- Vulnerability
- Human Health and Ecology
 - May have to assess parts together

Vulnerability

- Susceptibility/Sensitivity
 - Differential exposure
 - Differential preparedness
 - Differential ability to recover
-
- Question: How do these factors change risk?

State of the Science

- What do we know about...
 - Adding risks across stressors?
 - Synergism & other interactions?
 - Vulnerability?
 - Non-chemical stressors?
 - Methods to do these assessments?
 - How all these factors change risk?

Combining different risks

- Can – or should – different types of risk be combined?
- Common metric approach
- Index approach

Uncertainty

- Few good examples of uncertainty analysis for Cumulative Risk Assessments
- New GIS-based technology poses new challenges in uncertainty analysis
- What type of analysis would be useful to a decision-maker?

Framework's Done...Now What?

- Working with NEJAC, esp. on vulnerability
- Non-chemical stressors
- Case studies 2003-2004
- Issue papers on specific topics 2004
- Research agenda 2004
- Guidelines development *starts* 2005